

Notice of Allowability**Application No.**

10/528,906

Applicant(s)

FENNY ET AL.

Examiner

Brian M. O'Hara

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephonic interview with Brian Harris on 07/24/2008.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 04/18/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brian Harris on 07/24/2008.

The application has been amended as follows:

Claims 2 and 10 were amended to remove the word cyclic in the phrase "lateral cyclic output." The amendments to claims 2 and 10 result in the following claims:

2. The control system according to claim 1, wherein the stepped mixing linkage generates a selected left lateral-cyclic output in response to a selected forward cyclic input, and the stepped mixing linkage generates a selected right lateral-cyclic output in response to a selected aft cyclic input.

10. The rotorcraft according to claim 9, wherein the control system generates a selected left lateral-cyclic output in response to a selected forward cyclic input and, a selected right lateral-cyclic output in response to a selected aft cyclic input.

Claim 15 was amended to move the element called the "lateral output link" from the preamble of the claim to the body of the claim. The amendment to the claim results in the following:

15. A stepped mixing linkage for use on an existing rotorcraft having a control system including a cyclic for receiving pilot input commands, a torque tube pivotally coupled to the cyclic, a forward-aft output link pivotally coupled to the torque tube for transmitting forward-aft pilot input commands to a main rotor, and ~~a lateral output link pivotally coupled to the torque tube for transmitting left-right pilot input commands through~~ a left-right output link for transmitting left-right input commands to the main rotor, the stepped mixing linkage comprising:

two supporting links adapted for pivotal coupling to the torque tube;

a floating link pivotally coupled between the two supporting links, the floating link having a central reference point; ~~[[and]]~~

a lateral output link operatively associated with the floating link for transmitting left-right input commands through the left-right output link to the main rotor; and

a ground link pivotally coupled between one of the supporting links, the ground link being adapted for pivotal coupling to a grounded structure on the existing rotorcraft;

wherein the ratio of the lengths of the two supporting links to the length of the floating link is small, thereby generating a selected lateral sinusoidal output, a selected rotation of the sinusoidal output, and a selected ramped output in response to each forward-aft pilot input command.

2. The following is an examiner's statement of reasons for allowance: The prior art does not render obvious the use of a Watt's linkage pivotally coupled to a torque tube on a helicopter control system for the purpose of mixing the lateral and longitudinal cyclic controls.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. O'Hara whose telephone number is (571) 270-5224. The examiner can normally be reached on compressed 5/4/9.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael R. Mansen can be reached on (571) 272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Mansen/
Supervisory Patent Examiner, Art Unit 3644

/B. M. O./
Examiner, Art Unit 3644